

1 CLAIMS

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3 1. A cleaning tool for use on a work string, the tool
4 comprising a cylindrical body having an axial bore
5 running there through, a plurality of cleaning
6 elements mounted thereon and positioning means to
7 move the cleaning elements in relation to the body,
8 and wherein the elements are located eccentrically
9 to the axial bore.

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11 2. A cleaning tool as claimed in Claim 1 wherein the
12 cleaning elements are scrapers arranged on an outer
13 face thereof.

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15 3. A cleaning tool as claimed in Claim 2 wherein each
16 cleaning element is substantially rectangular in
17 cross-section to provide a first edge between a side
18 and the outer face.

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20 4. A cleaning tool as claimed in any preceding Claim
21 wherein the plurality of elements are located in at
22 least one band around the circumference of the body.

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24 5. A cleaning tool as claimed in any preceding Claim
25 wherein each element is located in a recess of the
26 body, each recess being located longitudinally on
27 the body, eccentrically to the axial bore.

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29 6. A cleaning tool as claimed in any preceding Claim
30 wherein the positioning means is a biasing means
31 located in the recess against the cleaning element.

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- 1 7. A cleaning tool as claimed in Claim 5 wherein the
2 biasing means is a spring held in compression,
3 biasing the element away from the body.
4
- 5 8. A cleaning tool as claimed in any preceding Claim
6 wherein an outer face of each cleaning element has a
7 curvature which is greater than a curvature of the
8 cylindrical body.
9
- 10 9. A cleaning tool as claimed in Claim 8 wherein the
11 curvature of the outer faces of the elements are
12 selected such that in a first position wherein the
13 outer faces are proud of the body, the outer faces
14 define a cylindrical surface centralised to the
15 axial bore.
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- 17 10. A cleaning tool as claimed in Claim 9 wherein in a
18 second position, the outer faces are located
19 outwardly of the first position, the first edge of
20 each element providing a leading edge of a scraper.
21
- 22 11. A cleaning tool as claimed in any one of Claims 2 to
23 10 wherein the outer face comprises a material being
24 softer or more malleable than the material of a
25 Polished Bore Receptacle (PBR).
26
- 27 12. A cleaning tool as claimed in any preceding Claim
28 wherein the elements include a profiled end which is
29 tapered.
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- 31 13. A cleaning tool as claimed in any preceding Claim
32 wherein the elements include a profiled end arranged
33 to provide a stop.

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2 14. A cleaning tool as claimed in Claim 13 wherein the
3 end comprises a mill, so that the tool acts as a top
4 dress mill.

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6 15. A method of cleaning a liner top, the method
7 comprising the steps;

- 8 (a) inserting a cleaning tool into a liner;
- 9 (b) running the tool and liner together into a well
10 bore;
- 11 (c) setting the liner at a casing in the well bore;
- 12 (d) rotating and/or reciprocating the tool to clean
13 an inner surface of a PBR on the liner with
14 cleaning elements thereon;
- 15 (e) pulling the tool from the PBR, so that the
16 cleaning elements move outwardly to contact
17 neighbouring casing at the liner top; and
- 18 (f) rotating and/or reciprocating the tool to clean
19 an inner surface of the neighbouring casing
20 with the leading edges of the cleaning
21 elements.

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23 16. A method of cleaning a liner top as claimed in Claim
24 15 wherein the tool is as claimed in any one of
25 Claims 1 to 14.

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27 17. A method of cleaning a liner top as claimed in Claim
28 15 or Claim 16 wherein the method includes the
29 further step of tripping the tool from the well
30 bore.

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32 18. A method of cleaning a liner top as claimed in any
33 one of Claims 15 to 17 wherein the method includes

1 the step of attaching the tool to a liner setting
2 tool, so that the tool is tripped out with the
3 setting tool.

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5 19. A method of cleaning a liner top as claimed in any
6 one of Claims 16 to 18 wherein the method further
7 includes the step of selecting the curvature of the
8 outer faces to be no greater than the curvature of
9 the inner surface of the PBR.

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11 20. A method of cleaning a liner top as claimed in any
12 one of the Claims 15 to 19 wherein the method
13 includes the step of running the tool back into the
14 PBR.

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16 21. A method of cleaning a liner top as claimed in any
17 one of the Claims 15 to 20 wherein the method
18 includes the step of dressing a top of the PBR.

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20 22. A method of cleaning a liner top as claimed in any
21 one of Claims 15 to 21 wherein the method includes
22 the step of setting down weight on the tool to
23 thereby set a packer.